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APPENDIX

TO

"A GUIDE

TO THE

CHOICE OF A SITE

FOR

RESIDENTIAL PURPOSES."

BY A MEMBER

OF THE

GEOLOGISTS' ASSOCIATION,

AND

OPINIONS OF THE PRESS.

REDHILL:

PRINTED BY H. SUTTON & SON, STATION ROAD.

1888.

“THE sweetest airs of land and sea
Ever around and o’er you play,
Making you sweet and fresh as they
With their immortal purity.
Familiar heights, o’er you how oft
My feet have moved, well pleased to press
Your springy texture, firm and soft,
The antidote of weariness ;
Your turf made fine by wandering
Of frequent sheep, which finding there
Fit nutriment of food and air,
Are reared amid your pasturing
To symmetry compact and fine.

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And with whatever fresh delight
The heart is lifted as the eyes,
From some commanding beacon height,
Range o’er the vision fair that lies
Where, far below, the vale extends
Till with the horizon line it blends,
A fertile plain, pleasant with trees,
And halls, and spires, and villages.”

“ *The South Downs*,” by Isaac Sharp.

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Cancer in the Thames Basin.

“R. ALFRED HAVILAND, M.R.C.S., late lecturer at St. Thomas's Hospital Medical School, in an elaborate paper, published in the *Lancet*, on the 'Geographical Distribution of Cancerous Disease,' deals with the Thames basin and the Devonshire districts in relation to the prevalence of cancer, as they afford good illustrations of what obtains throughout England and Wales as regards the distribution of this disease. Within the Thames basin we find almost every variety of retentive and non-retentive strata along the banks, differing both in physical as well as in chemical characters; among the former are London clay, plastic clay, gault, Kimmeridge clay, Oxford clay, Fuller's earth, and lias clay. Now, floods on the soils overlying these formations leave behind them very different effects, and all these should be studied in relation to local climate and local disease. Where can there be a greater contrast than what obtains in the neighbourhood of London? Chalk and London clay. Yet in close contiguity do they lie; although diseases when mapped out show their boundary lines. We know that certain plants are only to be found where chalk abounds, and certain others rare, except in calcareous districts. I have made a list of 34 chalk plants, the majority of which may be found in low mortality cancer districts—or rather in those localities where these flowers do thrive and cancer cannot, or at least does not. As to the non-retentive or absorbent rocks through which the Thames cuts its way from Trewsbury Mead to its mouth, they are as follows;—inferior oolite, great oolite,

forest marble, calcareous grit, coralline oolite, lower green sand, and chalk. It must, however, be remarked that these formations characterise the high water-parting or low mortality districts; whereas the clays are found forming the bed of the fully formed and seasonally flooded river. When the absorbent rocks, however, underlie sufficiently near the surface of these clays, they exert their beneficial influence in neutralising sourness and in effecting drainage; but should they be deeply seated and the retentive clays of great thickness, like the London clay, then all the flood evils are intensified, and the effect is immediately seen in the high death-rates from cancer among men and women.”—*Globe*.

“A member of the new Emperor’s household wrote to me before the Emperor Frederick died:—‘The ill-treatment began by sending the patient to Ems, which made the throat slough. He went to that close and humid valley at the time when miasma means ague or some other sort of blood poisoning to the weak In my opinion, it was a fatal error to remove him from dry Charlottenburg to dank Potsdam. “Broads” of still water poison the air there. The healthy can resist their depressing and microbe-generating action; but to the unhealthy they are destruction and death. Indeed, he should never (given his near descent from the Saxe-Weimars) have lived among the Havel Broads. If a person has any disease-germ, residing in humid air fertilises it. Cholera-haunts are at river-sides. Cancer has a preference for those living on flats at river-mouths, and if you have gout which you would keep from being inflammatory, live *high up and in dry air*.’”—*Notes from Paris, “Truth,” June 21st, 1888.*

“The public sympathy with the Crown Prince of Prussia may be practically beneficial, if it promotes some more searching and thorough inquiry than has yet been made into the nature, the sources, and the alleviations, or cure (if any) of that terrible disease—cancer. For this has, especially of late years, assumed the position of a scourge of humanity. Every year thousands of the wives, mothers, and daughters of our own countrymen are

most painfully done to death by it. For although it attacks men also, yet it is chiefly women who are its victims. And hitherto, no medical colleges, or specialists, or scientific bodies, appear to have been able either clearly to enunciate its definite causes, or to discover any generally efficient remedy. It is known, however, that certain geological formations, or physical features of the country, as, for example, the estuaries and low-lying marshy banks of rivers, are peculiarly favourable to the development of the pest.”—*Daily News*, Nov. 25th, 1887.

“For consumptive patients in the early stage of illness, a removal to a northern bracing climate is thought the very best thing. I have known men who have been obliged, in absolute despair, to go to the north of England or Scotland for the winter, and have found to their delighted astonishment that their shattered health has been completely recuperated. Before you are sorry that the expense of the Riviera or our own South Coast is prohibitive, make sure that you really require a southern climate.”—*London Society*, 1878.

“To live in, and breathe freely, the open air without being deterred by the wind or weather is one important and essential remedy in arresting the progress of consumption—one about which there appears to have generally prevailed a groundless alarm lest the consumptive patient should take cold. The abode of the patient should be in an airy house in the country—if on an eminence the better. The neighbourhood chosen should be dry and high. The atmosphere is in such situations comparatively free from fogs and dampness. The patient ought never to be deterred by the state of the weather from exercise in the open air. The cold is never too severe for the consumptive patient in this climate. The cooler the air which passes into the lungs, the greater will be the benefit the patient will derive. Sharp frosty days in the winter season are most favourable. The application of cold pure air to the interior surface of the lungs is the most powerful sedative that can be applied, and

does more to promote the healing and closing of cavities and ulcers of the lungs than any other means that can be devised. Many persons are alarmed and deterred from taking much exercise in the open air from the circumstance of their coughing much on their first emerging from the warm room of a house ; but this shows that the air of the room was too warm, not that the common atmosphere was too cold.”—*The Treatment and Cure of Consumption*, by GEORGE BODINGTON. 1840.

“*Phthisis* has been regarded as the greatest scourge which afflicts mankind ; for it is always insidiously at work amongst us. Under the title, ‘The Experiences of a Poitrinaire,’ Dr. Friedmann, of Berka, has embodied observations on himself and others, extending over seventeen years, in pamphlet form. Dr. Friedmann very clearly lays down the principles upon which the best sanatoria are conducted. We fight against phthisis in three modes, namely, by medicines, by dietetics,—which include the patient’s whole course of life,—and by climatic influences. But the influence of drugs upon phthisis is practically *nil*. There remain as curative agents dietetics and climatic influences. The latter of these comprehend the former. Where are the cases to go ? The answer is, *where they can breathe pure fresh air all day and all night*. It is long since established that fresh air is the most powerful factor in the cure of phthisis. The deeply-rooted prejudices against the vivifying breezes, the unreasonable fondness for a hot-house temperature, and the prevalent fear of ‘taking a chill,’ must be discarded. The fear of ‘catching cold’ is still too much a bugbear with both doctor and patient. The little vital capacity which the patient possesses should be increased by living as much as possible in the open air. It is the hardest task of the physician to combat *this fear of the patients,—namely, of taking a chill*,—a task which demands all his energies. The patient must be sent out of doors in all weathers, properly clothed, of course.”—*British Med. Journal*.

“If the causes of physical suffering could be ascertained, we would probably find that not war or pestilence, but the lung-destroying night-air superstition is the direst curse ever visited

upon the progeny of Adam. Ignorance is not the main root of that curse. There are prejudices worse than ignorance by just as much as poison is worse than hunger. That pulmonary consumption is not caused by cold out-door air, but by foul in-door air, is a truth established by incontestable proofs. Experience has demonstrated that for the radical cure of lung diseases out-door life in a cold climate is more favourable than any mode of life in a tropical climate.”—DR. OSWALD.

“For an invalid’s winter residence it is of great importance to obtain the largest practicable period of sunshine at all portions of the day, but especially as late as possible in the afternoon,—that is, from the south and west. But morning sun is also desirable, and care should be taken that the anxiety most invalids feel to be protected from east winds does not lead them to choose a house that is also protected from the eastern sunlight.”—DR. DOBELL.

“We live in air, says a recent writer, and this air flows continually into our blood. No marvel then that we are influenced by climate, which means the condition of the air. The higher the situation, the more pure is the air; the more dry and bracing it is, and more laden with health-giving ozone. Places by the banks of large rivers like the Thames are subject to various influences inimical to health; notably, exhalations from the river itself, from decaying animal and vegetable matter on its banks, from the malaria of low-lying adjacent lands. To take a pleasant evening walk by the bank of the river or lake; to saunter amongst wet groves till the moon rises; these are exposures to malaria and fever, and to the kind of night air that is really to be dreaded, and which is a thousand times more to be dreaded than all the nights of all the winters that ever were.”—*Climate and its Influence on Health*, “*Cassell’s Magazine*,” 1886.

“Masses of elevated land affect the climate by giving out in late autumn and winter some warmth which they had acquired in summer.”—JOHN PHILLIPS, F.R.S.

“Many gardeners and amateurs have failed to a certain extent in the culture of apricots in orchard-houses, owing to the trees

not having air enough when they are in bloom. This is a great mistake, and the effect of the old-fashioned idea that a dry cold wind blowing through the house must injure the blossoms. If such cultivators could visit the South of France in March, when apricots and almond-trees are in full bloom, and the 'bise,' or north wind, blowing without injury to the blossoms, they would not fear any evil effects from a cold, dry March wind blowing through the orchard-house in which apricot and almond-trees are placed. It is the still hoar frosts that are so fatal to fruit-blossoms out of doors, not dry cold winds. In orchard-houses stagnant humid air is equally fatal. All stone-fruits flourish best in climates dry and cold in winter and early spring, and dry and hot in autumn.

"In such dry and sunny counties as Surrey and Hampshire orchard-house sanatoriums will one day be formed, and a fine dry air will be secured more healthy and grateful than can be found in Continental Europe,—the air of Nice without its cutting winds. I can with truth say that the advantages of large glass-roofed houses as places of resort for active exercise in unfavourable weather, by ladies and persons in delicate health, are not yet half so familiar as they should be. When sanatoriums are fully established, people will wonder how they could have existed in England without such places, so dry and health-giving is the air of large glass-roofed houses in autumn, winter, and spring, when no plants requiring heat and moisture are cultivated in them."—*The Orchard-house*, by T. F. RIVERS. 1879.

The Benefits of Climbing, as a part of the Benefits of high-lying Situations.

"Another point in favour of Scarborough as a health resort is its altitude ; and as some of our physicians are sending patients abroad, in order that they may climb hills, as part of the movement cure, we would impress upon them what Scarborough offers in this respect."—DR. HAVILAND *on Scarborough as a Health Resort*.

"Climbing is the most health-giving of exercises. I never feel so well as when I am climbing; and almost every one will tell you the same story."—*Echo*, Aug. 3rd, 1888.

"One reason—in addition to the bad weather—why English watering-places will be neglected this year is the new fashion for curing obesity and heart disease by mountain-climbing. Many who suspect themselves of a weak heart are making preparations to hie themselves to Switzerland, and letters from the little Republic say that 'half fashionable London' is coming."—*Ibid.*, Aug. 7th, 1888.

"*Oertel's Climbing Cure.*' The central idea in this cure is to strengthen the muscle of the heart. The muscle of the heart is strengthened by enforced exercise, by walking, or better, by climbing heights. The patient should walk slowly uphill until palpitation comes on, when he must stop until he can again breathe easily, but he must not sit down. He must walk several hours a day, and climb as much as possible. Oertel has extended his advocacy of mountain-climbing, as a curative agency, to other forms of heart disease besides such as are dependent upon or associated with corpulency; *i.e.* 'to all forms of weak heart and also to valvular defects.' The surrounding atmosphere should be rich in oxygen, as in heart disease the system is often overcharged with carbonic acid, and the air should also be dry and free from dust."—DR. BURNEY YEO, *Nineteenth Century*, August, 1888.

"If the consumptive patient learns to pin his faith to his inhaler, or his antiseptic respirator, and neglects diet, exercise, and pulmonary discipline, it is not difficult to predict that his gain will bear but a small proportion to his loss. Amidst much confusion and uncertainty upon the subject, it seems hardly open to doubt that the consumptive needs, above all things, first, regular and vigorous expansion of the chest, to improve the quality of the pulmonary tissue, and to assist in the expulsion of morbid products, and, secondly, perfect purity of air, to mitigate the local lesion and strengthen the constitutional condition. Whether any more efficient agent than those now in use may yet

be discovered for administration by inhalation must be left to the future to decide, but we think the fundamental principles of treatment just enunciated are not likely to be overthrown by any advance in therapeutics that the future has in store for us."—*The Value of Inhalations*, "*Lancet*," Sept. 1st, 1888.

We are thoroughly convinced that in no way can that "regular and vigorous expansion of the chest" be so well secured as in climbing the hills and living in their rarefied atmosphere, and that nowhere can "perfect purity of air" be more certainly found than on the chalk hills.

Further Advantages of the Chalk for Ornamental and General Cultivation.

"Chalk undoubtedly, and all calcareous rock, including calcareous earths, exercise a more or less remarkable salutary effect in counteracting many of the evils arising from floods. In fact, the carbonate of lime, of which they are composed, cannot fail to have a neutralising effect on the sourness of the soil which floods leave behind them. This sourness, we all know, has a marked effect on the herbage that springs up after the subsidence of the waters, which is generally rank and sour, instead of being crisp and sweet. This rankness, associated as it is with sourness derived from acids, the result of putrefactive vegetable decomposition, the farmer well knows, produces among his sheep and cattle certain ailments, of which the 'scour' is not the least troublesome. The temporary local climates formed by the exposure of large areas of sodden decomposing soil cannot fail to produce effects on the animal system."—DR. HAVILAND, *Lancet*, 1888.

"In Surrey are some delightful spreads of downs, with the usual soft turf that grows on the dry but never parched chalk."—WHITAKER'S *Geology of London*.

"Other things being equal, I should certainly give the preference to land resting upon chalk for 'general farming pur-

poses.' A clay subsoil requires draining, and the soil resting upon it is generally cold and backward, besides other drawbacks, such as being unsuitable for sheep farming, and requiring generally careful and skilful management to ensure free outlet for all surface-water by means of furrows and open ditches, &c. A gravel subsoil, on the other hand, often means a surface-soil liable to burn in hot seasons, and in wet ones to lose a large proportion of the soluble fertilising matter through its being washed away beyond the reach of the roots of plants growing in it before they can avail themselves of those soluble particles ; hence such land is often 'hungry.' But, while a perfect natural drainage is secured, it is rare indeed for good land resting upon a chalk subsoil to burn even in the hottest summers. Corn of the finest quality can be grown on such land, some of our most valuable forage crops, such as lucerne, sainfoin, clover, &c., succeed better on it than on any other description of soil, and sheep always thrive better in the chalk districts than anywhere else."—*Farm and Home*, July 28th, 1888.

"I have for some time suspected that which I now know ; viz., the necessity of calcareous matter in all composts used in the cultivation of stone fruits. Many orchard-house amateurs have for several seasons felt surprise at the robust healthy appearance of the apricot-trees cultivated here in pots, and their extreme fertility. I had been so accustomed to perfect success in their culture that I felt no surprise, thinking it a matter of course, and scarcely crediting accounts I heard of their failure with some cultivators. On a careful examination of the soil, particularly the loam used in potting fruit-trees, I found it to be like all the soils in this district, full of finely comminuted chalk, and to this large preponderance in our sands and loams, amounting in the former to 25 per cent., is owing a part of the great success which attends the cultivation of orchard-house fruits here. I believe the addition of chalk to compost not calcareous, and to loams of a ferruginous nature, to be quite necessary in the culture of stone-fruits ; and, if not necessary, still most beneficial to all kinds of fruit-trees. The fine cherries on pyramids

in pots, grafted on the *Cerasus Mahaleb*, now cultivated here, and the great success of plum culture, are owing to the calcareous soil.”—*The Orchard-house*, by T. F. RIVERS. 1879.

“A florist who grows flowers on the chalk soil of the Woldingham Estate for the London market is very successful. He has had experience in growing flowers on other soils, as on the London clay, and he finds that the colouring of the flowers on the chalk at Woldingham is richer than that of those grown on other soils; and Mr. Bromwich, F.R.H.S., whom he supplies, who contracts for floral decorations, and daily receives flowers from all parts, states that those he receives from Woldingham are equal to the most choice productions from any other quarter. The grower referred to attributes the superior colouring to the purifying effect of the chalk soil on the atmosphere.”

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Water-supply.

In the purely pastoral and agricultural parts of the high-lying chalk ranges, where the people are content to rely on the storage of rain water, an exceptionally long-continued drought may exhaust the existing means of storage, and greater cost is sometimes incurred in fetching water from a distance than would suffice either for providing adequate additional storage, or for sinking a deep well and obtaining a permanent supply of pure water.

In the tank storage there is a great deal more protection against pollution than is possessed by the wells of other formations, where the water-level of the district is not far below the surface, because the rain-water tank of the high-lying chalk district must necessarily be made of good sound brickwork, laid in cement and lined therewith to retain the water within the tank, the ordinary water-level being hundreds of feet below. The security thus obtained against the escape of the water from within the tank is also plainly a security against the invasion of pollu-

tion from without, (the only vulnerable part being the communication between the rain-water shoot from the roof and the reservoir: if this part is constructed of socketed glazed earthenware pipes, cemented together, the whole arrangement is pollution-proof).

In low-lying gravel, sand, or clay districts, on the contrary, or even where elevated, if the water is held up so as to be not far from the surface, the wells are lined with bricks laid without any mortar or cement, to let in the water from without, and the whole of the water-supply being near the surface is liable to contamination, and—the walls of the wells afford no protection against it.

We remember a case at Leicester where a well in the New Red Sandstone was polluted by communication having been established with the sewer. We know a well in Surrey (which supplies a number of houses) that is placed at the foot of a large churchyard, which rises considerably above it and is crowded with graves, the subsoil being sand. Several years ago the author was looking over the house a short time previously occupied by the late Mr. Grote the historian, on the range of Lower Greensand hills near Gomshall. The most perfect sanitary arrangements were observable in the structure of the house and the ventilation of the sewer-pipes,—but the sewage was conducted to a large soakage cesspool only a few yards from the well which supplied all the water for drinking and other domestic purposes, the subsoil in which these arrangements were found to exist being a sheer porous sand. The water-supply of an ancient and still favourite town on sandy soil is largely derived from a number of shallow wells, some mere surface-water-catchment wells, distributed in the adjacent fields. The works are close to an old stream, into which some of the sewage of the town formerly went; close beside this stream are feeder-tanks, with their bottoms of brick without mortar or cement, receiving supplies from the stream in an almost crude state. In an old town in the Midlands a considerable portion of the subsoil (the Lower Lias) is saturated with sewage, and very few of the wells can have escaped contamination. We can scarcely take up a

daily paper without finding some instance of contamination of wells in some part of England or other; for instance, in the *Standard* of Aug. 16th we find that typhoid fever of a malignant character has broken out at Tiffield, near Northampton (probably in the Oolite formation) to an alarming extent, through the village well being contaminated by a cesspool. Elsewhere we read, about the same date, that in the Sunninghill portion of the Ascot district the houses are supplied by wells which are in most cases very near to the cesspools into which the houses are drained, and the results bring pressure on the sanitary authority from the "Board above." In the *British Medical Journal* of Sept. 1st, it is stated that "the number of cesspools in Weybridge must be very large, and as houses have now been built in many parts of the parish closely crowded together, with the merest strips of gardens, it must follow that pollution of the sub-soil with excremental filth has already taken place to a large extent, and must reach even larger proportions as the land becomes more valuable, and houses are more and more closely packed together. That this is no imaginary danger is shown by the fact, that analysis of the well-waters over a considerable portion of the parish reveals sufficient proof of pollution of the ground-water to warrant condemnation of those sources of supply." In the *Lancet* of Sept. 22nd, it is reported that the well-waters at Great Grimsby are obviously liable to contamination by soakage of filth, and the medical officer of health has reason to attribute frequent occurrences of enteric fever to the use of water from some of these wells. The *Lancet* also remarks under the report from the Milton rural district that "one of the greatest sources of danger to a rural district is resort to shallow wells." Many a well in our towns and villages is no doubt contaminated, and is the unsuspected cause of indisposition and disease.

It must therefore be plain that the rain-water storage in an elevated chalk district is far less liable to contamination than the shallow wells of other formations, and further, it is an immense advantage, sanitarily, in favour of a high-lying chalk district that its spring water must necessarily come from deep

wells, percolation to which through hundreds of feet of chalk rock must effectually guarantee the purity of the water.

The whole of the North Downs, through Kent and Surrey into Hampshire, and the southern side of the Wealden and the Sussex Downs, are full of high-lying chalk sites. The hills round Caterham and those between Sutton and Reigate, and between Croydon and Merstham, being the most adjacent to London, are magnificent health-restorers. Would that their pre-eminent qualifications were as widely known as they deserve to be. They rise to 600, 700, and 800 feet in height; even the valleys between them are comparatively high-lying, dry, and healthy, the hills enclosing them being, however, demonstrably drier and healthier, and possessing a clearer, purer, and more rarefied atmosphere. Nearly the whole of this district adjacent to London, from Woldingham and Warlingham on the east to Sutton and Kingswood above Reigate on the west, is abundantly supplied with most excellent water from the deep wells of private enterprise or public companies, deep well-water supply going hand in hand with development almost as a matter of necessity in a high-lying chalk district.

Since the publication of the pamphlet we have met with many other cases of benefit from residence on the chalk. Two or three instances may be given from the vicinity of Caterham Junction, one of the nearest points to London, and close to a main-line station. A gentleman was very ill when he first went to live there several years ago, and had lost two sisters from consumption; he became quite well through living on the chalk, but he afterwards moved away to Brockley, nearer to London, and on gravel resting on London clay, where he again lost health and was laid aside by illness for a time. His wife, at whose desire he had left the neighbourhood of Caterham, because it was so quiet, tells him she is quite willing to move back again, as he finds it is so necessary to his health to live on the chalk. He also mentioned another gentleman, whose health had been greatly benefited by residence on a high-lying chalk site. A lady informed the author that her brother's life was saved through living on the chalk; he was consumptive when he

came to live near Caterham Junction, and he became quite well.

Much might be added to the pamphlet as the result of subsequent observation and experience as to the great benefit to visitors at Woldingham, Warlingham, Caterham, and other parishes in the high-lying chalk district. It is, however, patent to all observation that it is the constant residents,—*i.e.*, those who live there continually, through all the seasons of the year, and for years,—who receive the greatest benefit.

The remarkably healthy appearance of literally all the children at Woldingham is very noticeable, and the great, permanent improvement manifest in various ways in the health of both children and parents, especially the mothers (the more constantly at home of the parents), who have removed there from low-lying districts, is the strongest and most unmistakable demonstration of the fact that it is the permanent residents in a high-lying chalk district who receive the most thorough and abiding benefit from its climatic advantages.

OPINIONS OF THE PRESS.

"*Choosing a Residential Site.*—A valuable 'Guide to the Choice of a Site for Residential Purposes' has just been published by Mr. William Gilford, of Beech-grove, Redhill, Surrey, which consists for the most part of a series of collated opinions on this subject. The contention advanced by Mr. Gilford, who is a member of the Geologists' Association, is that high-lying, dry sites are remedial and preventive of disease, and promotive of health and the enjoyment of life,—a general contention that few if any are likely to argue against. Indeed the pamphlet itself demonstrates that the contention is affirmative by a wide consensus of opinion amongst laymen as well as scientists, and that the best soil is that composed of chalk. Chalk, upon which the whole of Brighton is built, is of porous nature, and drains itself thoroughly and well, while clay remains damp, and the atmosphere above it humid and deleterious. Elevated sites with a chalk soil, as they drain more quickly, are drier than low-lying situations; and they are warmer, because, as it is pointed out, the cold air being heavier than the warm, the lower atmosphere is always the coldest. The pamphlet is undoubtedly interesting, and those seeking a healthy situation for a residence will find in it useful and valuable hints that will direct their choice."—*Brighton Examiner*.

"Reader, do you live on chalk? We do not mean do you *eat* it, but is your house founded upon it as a subsoil? If it is, you may read a little pamphlet, just issued by 'A Member of the Geologists' Association,' without qualms and with considerable satisfaction, seeing that, perhaps without knowing it, you have selected the most healthy kind of site that can be obtained. But if you happen to live on clay, or on gravel of the kind described as 'a delusion and a snare,' such as the low-lying river gravel of the Thames valley, which is generally worse than clay for dampness, then for your peace of mind's sake, perhaps, you had better not read this pamphlet. The author has collected a great number of medical and other opinions in favour of chalk."—*Family Circle*.

"*A Guide to the Choice of a Site for Residential Purposes.* Price 6d. The above is the title of a very useful and instructive pamphlet by Mr. Wm. Gilford, a member of the Geologists' Association, a copy of which has been forwarded to us. The subject is one of the utmost interest and importance, from a sanitary point of view, to all classes of the community, and, as the little work before us is full of most valuable information in regard thereto, we have pleasure in commending it to our readers' attention. The author says he has had it printed and

published at cost price, with the object of circulating information upon the question of geology in conjunction with altitude in its bearing on climate, and not from any desire to make a profit on its publication. The pamphlet can be obtained from the author, whose address is at Beech-grove, Redhill, Surrey, or of Mr. H. Sutton, printer, Station-road, in the same town."—*Builder's Reporter*.

"An anonymous member of the Geologists' Association has published a guide to the choice of a site for residential purposes. His theory is that high-lying dry sites are remedial and preventive of disease, and that chalk alone of all subsoils in the Home Counties can always be relied upon for dryness, even in an elevated situation. Even without the medical and other testimony which is produced to show the importance of high and dry sites, and their relation to health and happiness, the fact would no doubt be generally admitted, but unfortunately a chalky soil is a limited quantity, and, as the writer says, there are numbers of people who do not know what a chalk soil is. Many diseases are due to the dampness of the soil, and it is surprising what a change comes over children who are transferred from the low-lying clay to the high and dry chalk or gravel. Elevated sites are not only drier but warmer than lower situations, and they have a purer atmosphere and freer circulation of air. It is urged in this pamphlet that even gravel may be a delusion and a snare, and may be a reservoir of chilling stagnant water."—*City Press*.

"This is a little *brochure* of some fifty pages, advocating high-lying dry sites as the best suited for the erection of residences. It is full of quotations from eminent authorities in favour of the chalk hills of Surrey, and is dedicated to all who desire to escape from the impure air of London, or from the discomfort and peril of some unfortunate choice of soil in the country, in the hope that it may serve to indicate the general principles that should guide them in their avoidance of the prejudicial and unsatisfactory districts, and in their search after a district or a site which will contribute to their health, excite pleasurable sensations, and prove a lasting satisfaction. The author, Mr. William Gilford, of Beech-grove, Redhill, has treated his subject in a manner which renders it both useful and interesting, and those to whom the pamphlet is dedicated will derive pleasure and profit from a perusal of its pages, although perhaps with some of the author's conclusions they may not be quite in unison."—*Estate Gazette*.

"*A Guide to the Choice of a Site for Residential Purposes*, by a Member of the Geologists' Association (Redhill).—The author of this little *brochure* has collected a number of authorities in therapeutics and climatology, showing the advantages of high-lying dry sites as remedial and preventive of disease. The author favours high-lying sites on the chalk as being drier. He has, consciously or not, we do not know which, made a serious indictment against a large portion of the area included in Greater London, which is of clay soil. The author says a great many people in London 'do not know what a clay soil is, especially as regards its evil influence on climate, although many do know. Carefully avoid the clay districts comprised within the area of Greater London, which not only show themselves to be clay by the predominance of the oak and by their general flatness, but also by

still remaining in pasture, unoccupied by houses, although only six or seven miles from the Bank.' This appears to be a very strong indictment against South London as a residential locality. The compilation will help many to form an opinion as to the desirability of certain districts for residence, and help them to avoid flat, low-lying clay soils. Opinions culled from eminent physicians are classified, the names appended. It is well known that rheumatism, catarrhal affections, heart diseases, and consumption are induced in damp soil, and that greater extremes of heat and cold can be borne in a dry climate than in a damp one. As Dr. Lee and Dr. West say, in their works on climate, dry air favours excretion of moisture from the lungs and from the skin by means of insensible perspiration, while in moist air the perspiration accumulates on the surface of the body. From these facts, it is not hard to see why Southport, which is on clay, is less healthy than New Brighton, which is on a sandy soil. Elevated sites are drier and warmer than low ones; sheltered and timbered districts are less healthy than exposed and treeless places like Brighton. These are propositions in which there is some truth; but cannot the climate cure be carried too far, and are not wooded countries more endurable for the invalid than 'sunny and treeless' Brighton?"—*Building News*.

"Mr. W. Gilford, of Redhill, has written a guide to the choice of a site for residential purposes. It consists largely of quotations from eminent authorities, and points out the advantages of dryness of soil and climate, and of elevated sites, which are both drier and warmer than the low-lying ones. Richard Jeffries dwells upon the importance of sunlight. Trees, he says, are not wanted in Brighton. Glowing light, dry, clear, and clean air, general dryness—these are the qualities that render Brighton a sanatorium. No doubt many diseases are contracted through inattention to the soil and surroundings of the houses we live in, and this little *brochure* by a member of the Geologists' Association will be a useful guide."—*City Press* (Second Notice).

"*Choice of a Site for Residential Purposes*.—Although there is little difference of opinion among the general public on the desirability of avoiding low-lying districts as sites for our dwellings, Mr. Gilford, of Redhill, Surrey, has taken the trouble to collect into a pamphlet of forty-eight pages a number of extracts from the writings of experts, to prove what may be almost regarded as a truism. According to him, not only must the site be high, but it must not be on a clay soil, or on a bed of badly drained gravel; which opinions are also very general, the conclusions arrived at by the exhaustive process being that it must be a chalk hill like that on which his own residence is fixed. No doubt dryness of soil and atmosphere is a *desideratum* of the utmost importance, and is attained by the selection of a chalk hill; but, *per contra*, there are often difficulties in procuring water, about which he is wholly silent. On large tracts of down thousands of farms and other dwellings are dependent on tanks for their water-supply, and, from the exhaustion of their contents in dry seasons like the last, are often put to very great inconvenience in procuring it. We think, therefore, the author would do well if he would add to his collection of extracts in favour of his pet situation some directions for meeting the difficulty to which we have alluded, and which is a very real one

throughout the district selected by him. Such tanks are also very liable to contamination from sewage soaking from the mud well, or other similar receptacle, into them through the porous chalk, and thus producing a very considerable discount to be taken off the balance of advantages set down to the credit of the chalk. Visitors to the favoured localities adduced by the author feel the benefit of the bracing and dry air of the chalk hills, which is immediate, and it is chiefly the residents who suffer from the disadvantages to which we have alluded. That the latter may be overcome we have reason to believe, but that they very frequently exist we also know from personal experience, as well as from information from time to time forwarded to us by our correspondents. We should therefore advise our readers to be cautious before they change a house reasonably well situated on a good gravelly soil, well drained and airy, for any other, however high and dry it may be."*—*Field*.

* There may be little "difference of opinion" as to the undesirableness of low-lying sites and clay soils; yet, there is quite enough evidence constantly offering itself of thoughtlessness or want of knowledge "among the general public" to redeem "the trouble" we have taken from the suspicion of surplage. A dear old friend, the late Dr. Brock, many years ago, remarked on the almost amusing fatuity of many people removing from the dry gravel of the Bedford Estate in London to a clay soil in the suburbs. We have observed just lately the migration of a family from a high-lying open site on the Lower Greensand to a house on the Weald Clay, the dampness of which is increased by its being in a wood. We also see in another direction numbers of houses rising and being occupied near a main-line station in a low flat Weald Clay district, where every natural circumstance conspires to retain the water to stagnate on the surface, its only escape being, as a deadly poison, into the atmosphere; and the residents of that new neighbourhood will learn, it may be too late, that even convenient railway facilities do not compensate for the loss of health, especially when it means incapacity for business or pleasure, and for everything that gives a zest to life.

We are grateful for the acceptance of all our conclusions, so unreservedly expressed or implied in the *Field*. That, however, the demonstration attempted so inadequately step by step, each step supported by overwhelming authority, and strengthened by facts under one's own observation, is something more than a mere "collection of extracts," is amply evidenced by the very hearty and kind welcome which it has met with as a much needed contribution towards the supply of a want in our sanitary literature. The reviewer is in error in stating that there is any difficulty in procuring water in the district selected by us as typical, it being amply supplied by the East Surrey Company, and by private enterprise from deep wells at Kenley, Caterham, and Woldingham, and therefore the disadvantages he points out as the consequences of dependence solely upon the rain-water tanks do not exist there. It is only while a high-lying chalk district is exclusively pastoral and agricultural that it remains solely dependent thereon: when new facilities of access open it up to residential enquiry, its development depends upon, and therefore brings about, more adequate arrangements for water-supply. Although the points on which the reviewer remarks that we are wholly silent about, *i.e.*, the liability to contamination of a careless and insufficient supply of water, scarcely lie within the scope of the pamphlet "On the Choice of a Site," but is more pertinent to house construction, we thank him for thus giving us the opportunity of pointing out in the Appendix the immense advantage of a high-lying chalk district in the protection almost necessarily secured to its rain-water storage, as well as to its deep well resources.

"*The Choice of a Site.*—The geological conditions of the site of any proposed erection are, of course, an important consideration to the architect. The work before us deals with the subject from a sanitary point of view. The author has collated a series of observations of various authorities on the character from a sanitary point of view of a clay, sand, gravel, or chalk subsoil, and arrives at the conclusion that chalk and a fairly elevated situation are most beneficial to health, while a low-lying and a clay soil are least to be desired. We think for our own part that the principles advanced are generally accepted by the great majority of sensible people; but if any of our readers have doubts on the subject they had better enclose their seven stamps to the publisher, and become convinced."—*Building World*.

"We have received a pamphlet entitled *A Guide to the Choice of a Site for Residential Purposes*, edited by Mr. W. Gilford, Beech-grove, Redhill, Surrey. The chief object of the author is to demonstrate that high-lying sites are the best for residential purposes, but more especially those lying on the chalk. The book is compiled after the manner of a birthday text-book, being almost entirely made up of quotations 'from the evidence of a wide range of eminent authorities in therapeutics, climatology, &c.' Despite this peculiarity, the collected opinions are fairly interesting reading, and might be serviceable in helping its readers to form some idea as to the best qualities of a site. Unfortunately, however, the great bulk of people are not able to exercise their will according to their judgment in this matter. The lovely chalk hills are delightful enough, but if they are sufficiently accessible to London, they are beyond the means of all but the very well-to-do. Mr. Gilford's little book gives excellent reasons for choosing high-lying chalk districts, with all the attendant advantages of 'lovely scenery, brilliant sunshine, and pure clear air,' but it quite omits to state how people of limited incomes are to find their way thither. It is certainly important that the wealthier classes of the community should have homes in 'a land of pure air and sunshine, where health may be restored and life brightened as surely as at any famous health resorts,' and for them Mr. Gilford's 'Guide' is well adapted. But we cannot all live on chalk-hills, of course, and the pity is that so few of us can find our homes in such desirable quarters."—*British Architect*.

"Mr. W. Gilford, of Beech-grove, Redhill, who has devoted much thought and painstaking research to the question of geology in conjunction with altitude in its bearing on climate, has embodied the results of his labours in a valuable and interesting pamphlet. The subject is one upon which a large amount of ignorance prevails, and those who desire to live in a healthy and invigorating climate will find in Mr. Gilford's book many valuable hints which will prove of the utmost service to those to whom the selection of a site for residential purposes involves considerable trouble and anxiety. Obviously it is of the first importance that the site chosen should be situated in a healthy locality, which, judged from its geological aspect, is likely to be most conducive to health and the enjoyment of life. But the want of a knowledge of even the most elementary principles of geology is the cause of much perplexity and trouble to the anxious parent who, after much laborious inquiry and investigation, finds to his cost that the site which he has finally chosen is not calculated to promote or

sustain the health of himself and his family. Those who have studied this important phase of sanitary science will cordially agree with the conclusions (founded on the evidence furnished by the most eminent authorities in therapeutics, climatology, &c.) at which Mr. Gilford has arrived, and those who are called upon to advise or assist in the selection of a site may study it with profit and advantage. Mr. Gilford in the first instance shows that the high-lying dry sites are the best for residential purposes, are the most remedial and preventive of disease, and promotive of health and the enjoyment of life. The author next goes on to point out the superior advantages of those lying on the chalk, and in the course of his compilation he gives much valuable information with regard to the best residential centres in Surrey.

"We may add that the author has had the pamphlet printed solely for the purpose of circulating information upon so important a subject, and not with any desire to make a profit, and accordingly he has published it at cost price. The author has been greatly encouraged in the enterprise by the favour with which the work has been received where it has already circulated. The writer of one of the very gratifying letters which he has received remarks:—'Any one can tell whether or not the climate of any place they live in suits them; but without considerable knowledge of geology it is difficult to avoid blunder after blunder, which we might have been saved from had such a useful pamphlet as yours been obtainable earlier. I feel sure it only needs to be known to become very popular.' The book has been very neatly printed by Mr. H. Sutton, Redhill."—*Surrey Gazette*.

"Mr. William Gilford, a member of the Geologists' Association, publishes *A Guide to the Choice of a Site for Residential Purposes*. The two essential features insisted upon are elevation and dryness. The latter may be obtained on sand or gravel, if found well above sea-level, but is invariably found on chalk at a good elevation. He produces abundant evidence in support of his assertions. The high-lying chalk districts round Warlingham and Woldingham, in Surrey, are indicated as in every way suitable for residential sites, being healthy, beautiful, and convenient."—*Morning Post*.

"*A Guide to the Choice of a Site for Residential Purposes*. By a Member of the Geologists' Association. The upshot of this very useful work is that all people who can do so should fix their houses upon the chalk as a subsoil, avoiding clay especially, and only accepting gravel when it is above the high-water-level of the district and otherwise favourable to dryness. Unfortunately, true as are these conclusions—and we have good reason for assenting to them—the distance of the chalk districts from London, (Watford and Croydon being the nearest points) makes the advice here given of less service than it would otherwise be. But we strongly recommend any one who has a choice of residence to follow the precepts here given. (Redhill: H. Sutton. 6d.)"—*Literary World*.

"*Choice of a Site for Residential Purposes*. By a Member of the Geologists' Association. Henry Sutton, Station-road, Redhill. 1887. The author has, in the form of an inexpensive pamphlet, brought together a large amount of valuable information as to the importance of

site for residential purposes. Questions relating to the remedial and preventive action of high-lying sites by reason of dryness, state of atmosphere, movement of air, exposure to light and sun, and other like considerations, are entered into. The views of the author are endorsed by a number of quotations from skilled observers; and the geological aspects of the subject are well set out in a form which is easy of apprehension, and which cannot fail to be useful."—*Lancet*.

"‘A Member of the Geologists’ Association’ has written a very useful pamphlet. He calls it ‘A Guide to the Choice of a Site for Residential Purposes. High-lying, dry sites remedies and preventives of disease, and promoters of health and the enjoyment of life. From the evidence of a wide range of eminent authorities in therapeutics, climatology, &c. Considerations founded on geological facts and the benefits derived from residences on high-lying sites on the chalk, which alone, of all subsoils in the Home Counties, can always be relied upon for dryness, even on an elevated situation.’ The author of this most useful and valuable pamphlet (which is published by the author, Mr. Wm. Gilford, Beech-grove, Redhill, and by the printer, Mr. H. Sutton, Station-road, Redhill,) seems to go on the plan we once heard our venerable friend Dr. Roth advise. Said he, ‘Put as much as ever you can into your title;—lots of people will read your title who will never read your book.’ But we hope in the case of Mr. Gilford’s pamphlet it will not be so, but that all who read his title will not be content with that, but will read all the rest as well. They will be amply repaid. He has no difficulty in making good the promise of his title-page, but he adds much interesting matter, and explains many things in the differences of localities which sometimes seem so inscrutable.”—*Homœopathic World*.

"This pamphlet deals with a subject of considerable importance to the general public, and one moreover which has up to the present been too little understood by the masses, and not sufficiently recognised by those most responsible for the health of the people. The locality of a site for a residence is clearly shown to be of secondary consideration compared with the importance attaching to the nature and elevation of the soil on which it is proposed to build. The author gives in a concise and readable fashion the *pros* and *cons* to be taken into consideration when a healthy site for building purposes is desired, and supports his deductions with a number of medical and scientific opinions which give weight and corroboration to the subject from a geologist’s point of view. Those who are in a position to make their own selection of land for residential purposes cannot do better than take this little work as their ‘guide to the choice of a site;’ tenants, too, will find much useful information, and possibly those suffering from ill-health may discover the cause in this pamphlet. The evils of dampness and the advantages of dryness are clearly shown, and other matters promotive of health are dealt with in a manner that can be easily understood.”—*Herts Advertiser and St. Albans Times*.

"*Residential Sites*. By a Member of the Geologists’ Association. (Beech-grove, Redhill, Surrey: W. Gilford.) The object of this little pamphlet is to set forth the importance of chalk over all other subsoil as a site for residences. The author brings much knowledge of the

subject to bear upon the point, and the book will be valuable to all who can afford to select their own site upon which to erect a dwelling.”—*Temperance World*.

“Mr. W. Gilford, of Beech-grove, Redhill, has published, at the price of 6d., a very useful pamphlet entitled *A Guide to the Choice of a Site for Residential Purposes*. He contends—and there are very few who will attempt to gainsay his opinion—that high-lying, dry sites, especially those situate on chalk, are remedial and preventive of disease, and promotive of health and the enjoyment of life. The author has collected a considerable amount of information bearing out his contention, together with the evidence of eminent authorities in therapeutics, climatology, geology, &c. High-lying sites on the chalk, he maintains, can alone, of all subsoils in the Home Counties, always be relied upon for dryness, even in an elevated situation. He demonstrates that the air in elevated situations is more beneficial than that of any lower situations, not only because it is drier and warmer, but because it is more rarefied; and elevated situations are decidedly preferable, because they have a purer atmosphere and a freer circulation of the air. We warmly commend the perusal of this pamphlet to those who need direction in regard to the selection of a residential site.”—*West Surrey Times*.

The author has been amply recompensed by the many grateful and appreciative letters he has received from professional as well as lay correspondents in all parts of the country. The following examples out of many must suffice :—

From a correspondent in Hants, formerly a resident in Essex :—“I am changing my residence to benefit the health of a delicate child, and I can testify as to the correctness of the remarks in your valuable pamphlet as to the undesirability of a clay soil or subsoil for a site for a house. I consider the pamphlet to be most valuable, and full of information.”

From a very hearty letter from a doctor in the Midlands :—“I think you have put the advantage of elevation with great fairness,—a chalk-hill for choice, but a hill of any material rather than a dank valley. The wonderful benefit I get every autumn by two months’ residence among the slate mountains of Snowdonia confirms the strongest statements made in your pages. I unfortunately have had to reside in a valley, and at great loss I am now compelled to migrate, if I would spend the few years which may be left to me in any comfort from gout, rheumatism, and their attendant evils. I am thinking of the high grounds near Winchester, the old city, though on chalk, being in a punch-bowl depression of that formation, and punch-bowls are not good for gouty folk.”

From a journalist :—“I am somewhat interested in the subject, and if you like to send me a press copy, I will notice it in my paper. The subject is one that cannot be too well known, as it is certainly a misfortune for the whole community that the importance of it was not well to the front a hundred years ago. There can be no doubt that if the question of soil had been properly understood by our great-grand-

fathers, the present generation would have been far happier and healthier than it is. I wish your undertaking the success it deserves."

From a very kind and appreciative letter from Lancashire :—
 "I wish to thank you very much for the trouble you have taken in writing your *Guide to the Choice of a Site*. The extracts you give from some letters of Dickens describe exactly the effect of this climate upon myself and relative. It is very like the climate of Bonchurch and some parts of Ventnor. I am sorry to say that my experience of doctors has frequently caused me to doubt their judgment on the subject your pamphlet treats of so clearly. I was strongly recommended to live in Ventnor by a doctor said to be very clever, though he admitted that my lungs were perfectly sound, and after residing there twelve months I came away much weaker than I went. We were obliged to live here two years,—now, however, we are expecting an opportunity of going elsewhere ; so you may imagine how pleased we were to meet with your pamphlet, for we were most anxious to avoid choosing an unsuitable climate, and yet profoundly conscious of our ignorance on the subject. Of course any one can tell whether or not the climate of any place they live in suits them, but without considerable knowledge of geology it is difficult to avoid blunder after blunder, which one might have been saved from had such a useful pamphlet as yours been obtainable earlier. I feel sure it only needs to be known to become very popular, as few people are strong enough to treat the subject with indifference."





